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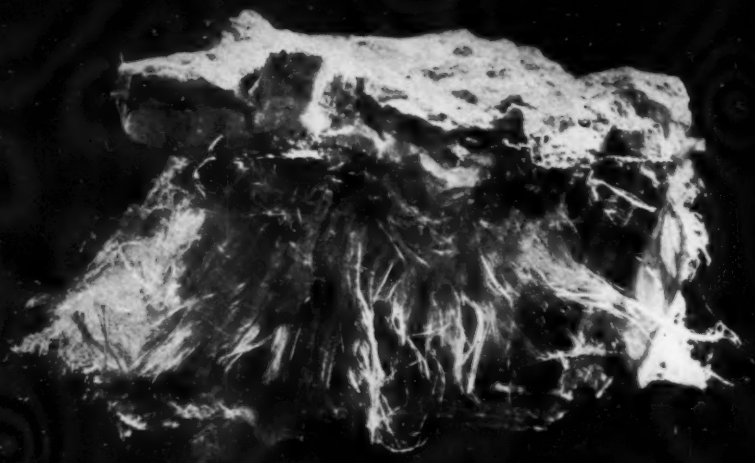

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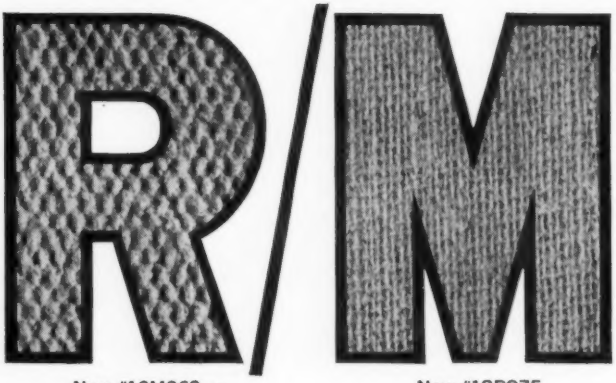

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THE ARIZONA LOW IRON CHRYSOTILE ASBESTOS SITUATION

By: **Frank Knight, Director*
**Lewis A. Smith, Department Field Engineer*

Production of Arizona low iron chrysotile asbestos was severely curtailed when government buying stopped at the close of 1958. Left with a limited, competitive market for the high grade crude fibres they were equipped to produce, the operators were faced with economic necessity to process and market the lower grades of fibre they for many years had been mining along with the higher grades and putting in the waste dumps, or to close operations. Three new mills for this purpose have been built at Globe, the nearest railhead for the Gila County area, which is the sole United States source of high quality, low iron chrysotile. Other mills are contemplated.

It took courage to undertake such expansion in the face of foreign competition because the ore reserves needed for its successful outcome were inferred rather than proven. The short discussion of the geology of Gila County asbestos appended hereto, gives the basis for the belief of the producers that reserves are adequate. However, they have found that if their industry is to continue as planned, it must be able to present to asbestos users more positive evidence of adequate reserves with which to meet long term commitments . More than normal drilling and excavation is necessary to secure this evidence. Many users are tied up with long term contracts with foreign producers and fear loss of a larger source if they buy Arizona fibre.

The Arizona producers feel that Federal expenditure of a few hundred thousand dollars (estimated to average at least $300,000 and varying with sales) per year over a period of 5 or more years is justified in order to establish an industry that will produce tax returns of over that amount in that period. The United States has spent and is spending large sums to help foreign countries in the development of their mineral resources, and it seems quite in line to spend

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money for aid to this struggling domestic industry.

A second problem faced by local asbestos producers lies in the characteristics of asbestos-bearing beds themselves. Arizona asbestos ranges from soft to harsh in character. The soft fibre is smooth to the feel and can be twisted between the fingers without breaking. The individual fibres are extremely thin, flexible and strong. On the other hand harsh asbestos is splintery, prickly and somewhat brittle. A small bundle breaks if twisted a number of times. The soft fibre separates easily by milling whereas harsh fibre, which is far more tightly adhered together, usually will not split without excessive breaking. Fortunately, much of the Arizona fibre is of the soft type, but often both types will occur in the same asbestos-bearing bed, necessitating extremely selective mining to keep the two types separated. This runs the mining costs up. If both could be fiberized this sorting cost would be reduced. Finding a method of splitting harsh fibre without breaking it, is apt to be a knotty problem, but one whose solution would do much to help the Arizona producer. At present he hasn't the facilities for such research.

The fibre seams in an Arizona asbestos-bearing bed of a few inches up to 2 feet, are variable in fibre lengths, and as many as 20 may occur in a single 2 foot horizon. They range from minus 1/64 inch up to as much as 4 inches in thickness. As many as 100 asbestos seams have been known to occur in a zone locally bulged to around 4 to 5 feet. Often a seam will split into 2 or more separate seams and later these will coalesce or again split. This makes it difficult to project mining by grades. In order to mine thinner zones it is not uncommon to handle many tons of waste to one ton of clean fibre. Much of the separation is by expensive hand cobbing at the mines. Figuring a normal swell in breaking the ground, a surplus of rock over gobbing requirements develops and this must be hauled from the mines. The usual variation of seam thicknesses is an adverse situation as far as milling is concerned. Due to the prevailing horizontal posture of the Arizona deposits, the application of small mechanical mucking and transporting equipment may help in the reduction of mining costs and the time required to move the ore and excess waste from the mines.

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The Canadian mines, on the other hand, contain relatively thick and well disseminated ore beds, which are mined at low cost much as the porphyry copper pits are. Heavy equipment can be used and large tonnages produced per day.

A third problem is transportation to the mills. Many of the occurrences are relatively inaccessible. Power, water, rail and truck facilities and supplies are all available at a reasonable cost at Globe. The hauls to Globe from the mines vary from a few miles up to 75-80 miles. Much of the hauling is over dirt roads which are crooked and often quite steep. Many feeder roads to the Young-Globe highway and Highway 60 are inaccessible in adverse weather, sometimes for relatively long periods. The precipitous topography around the mines makes haulage roads very costly to construct and maintain. At best, these mine roads are hard on hauling equipment. It is believed that an all weather low elevation road from the Salt River bridge up Cherry Creek to Young could help materially. This would eliminate the hard pull over the Sierra Ancha Mountains where the roads are sometimes under heavy snow cover in the winter. The Arizona Highway Department is now planning to survey such a route. This road would also help to make the potential iron ore deposits of northern Gila County more accessible. It would be useful to the Forest Service and would open up undeveloped recreational and hunting areas. Federal assistance is hoped for.

The 3 new, modern mills in the Globe area, built at an estimated private cost of $500,000, are much more selective than the older crude fibre mills. There are three of the older mills which produce good crude fibre. While the newer mills are a great improvement over the older ones they still are somewhat limited in the number of grades that can be produced from them. Numbers 1, 2, 3 and 7 fibres now are being produced. The market for Number 1 fibre is extremely small (probably 30 tons per year). 500 tons of the Number 2 fibre was recently contracted for by the Government at $920.00 per ton, and is expected to be delivered by the three contracting producers within a period of less than 2 years.

Since the fibre delivered from the mines often includes

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a great variation in lengths, the mills produce much fibre for which they now have little market for which they need to find one. The "bread and butter" grades are mainly Number 3 (filter grades) and Number 7 (widely used in plaster and cement). One mill produces carded asbestos which is limited to a very selective market and must be produced to some extent at the expense of the shorter grades. The filter grade market mainly requires soft, iron free asbestos and consequently is the principal product for Arizona producers. Number 7 grade has at present a good market for both the soft and harsh fibres but is a low income item. The longer harsh fibre would be equally suitable for filters if it could be fiberized without breaking. Good reserves of harsh fibre are known.

The mill operators believe that installation of automatic bagging equipment and other labor saving devices would decrease costs, as would the installation of more units to more adequately separate the grades not now profitably produced.

The installation of a plant to acid treat the asbestos, and also a mill to manufacture asbestos sheet and pipe, should follow the establishment of sufficient reserves to warrant the required investment. As stated before, the Arizona producer must guarantee long term contracts for his products, if he is to get constant markets. He now is merely selling on relatively short term contracts in a specialty market. Once he can show the user that he has sufficient reserves to fill a long term contract at a reasonable price, he will get his share of the markets because he has superior asbestos containing only 0.04% iron. It does have some lime, which the acid plant would eliminate for certain users. However, most users have their own acid plants.

The prices of low iron chrysotile are controlled by British Columbian producers. Their deposits are large and amenable to low cost open pit mining. Their asbestos is somewhat higher in iron than Arizona asbestos, however. The Arizona asbestos also has the advantage of a cheaper freight rate to some west coast and foreign users.

The major problems confronting Arizona producers therefore are ferreting out of adequate reserves, and lower-

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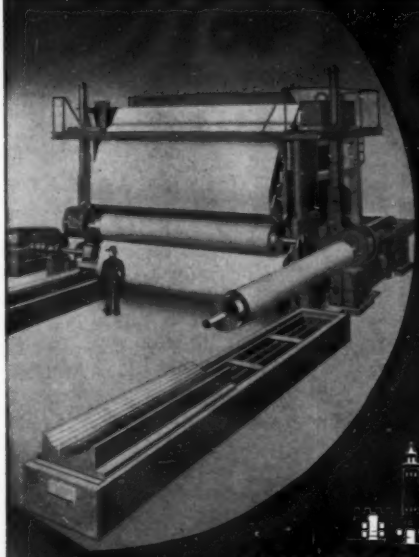

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ing mining costs by use of diesel equipment, better processing of harsh fibres, and building better roads. Much milling research is needed, especially on harsh fibres. While the producers are getting by due to being able to treat in their new mills the considerable accumulation of short fibres in the old dumps, they are not making enough to take care of their future problems.

The production bonus proposed recently by the Arizona Asbestos Producers Association is based upon actual sales of asbestos. The $300,000 or more estimated total bonus per year at 20% of sales is needed for development and exploration, principally exploration. The Association believes that the proposed bonus system would give them the assistance needed to establish a permanent small but important industry. They also believe that it would not eliminate legitimate new operators willing to spend some of their own capital, as the present ones have, to establish legitimate businesses. They would have to produce goods to meet the requirements of the buying industry before being eligible to receive bonuses or have their fibres processed in existing mills.

The local asbestos producers have always hired many Apache Indians and will continue to do this. The work need of these Indians is critical and bonuses to the asbestos producers undoubtedly would mean an increase in the employment of the Apache. By establishing a sound industry it would assure continued benefits, not only to those employed, but since much of the reserve of asbestos is on the Reservation, all of its population would benefit.

Geology of Low Iron Chrysotile Asbestos Deposits in Gila County, Arizona

The Arizona asbestos deposits occur in the Mescal limestone of the Apache pre-Cambrian formations. This limestone is divided into three divisions as follows:

1. Upper member (10-80 feet thick)

2. Algal member (80-150 feet thick)

3. Lower member (175-200 feet thick).

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a. The Upper member consists of siltstones, shale, and sandy or shaly limestones.

b. The Algal member is massive-bedded limestone and usually is composed of spheroidal masses that have a concentric, shell-like structure with maximum diameters of several inches. This formation is the cliff forming member, the one most readily recognized in the field and is therefore an indirect aid in prospecting and field correlation.

c. The Lower member is the most important as far as asbestos occurrence is concerned, although sometimes the asbestos may be found in bottom beds of the overlying Algal member. The individual beds vary from one inch to 6 feet thick. The thinner beds commonly are dolomitic, whereas the thicker beds are massive and are composed of relatively pure, chrystalline limestone. Some strata contain nodules and masses of chert. The bulk of the massive beds is in the upper 45-50 feet of the formation and it is within this portion that the major portion of the serpentine and asbestos is found.

The faulted bedding planes of the massive limestone were opened up by diabasic dikes and sills forming channel ways for the mineralizing solutions which produced asbestos-bearing serpentine and at the same time hydrothermally altered the diabase. Most asbestos veins, or seams, are in the upper 45 feet of the Lower member and at least one half of these are in the upper 10 feet. Other less common deposits are associated with other massive beds of the Lower member or are along major thrust faults in the bottom of the Algal member.

If the diabase dikes, or sills, cut across or closely approach a favorable horizon in the limestone, a commercial body of asbestos is most likely to form. Most commercial deposits are also within 25 feet of the diabase-limestone contacts. The diabase commonly domes or causes relatively flat folds, any one of which may not be important, but a cluster of such folds is usually more favorable. These "rolls" or folds are loci of fracturing. The diabase thus had the function of opening up the ground rather than producing the mineralizing solutions, by producing dip-slip

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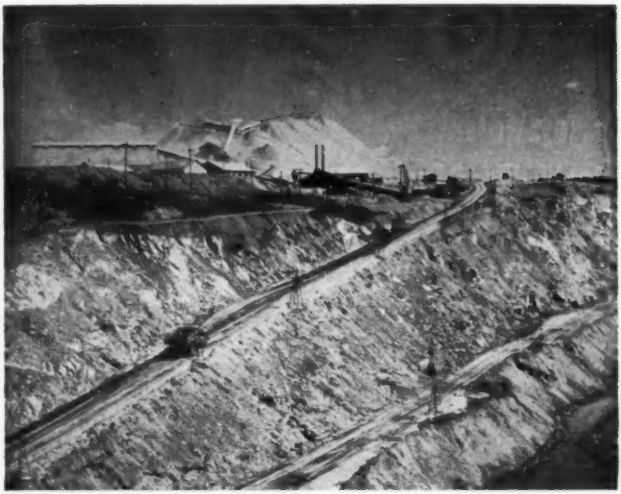

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faults between the beds or creating transverse fracture clusters in the domed limestone. In addition, post-instrusive bedding plane and thrust faulting caused considerable subsequent fracturing in the folded beds. This bedding-plane faulting probably can be considered the major single factor in the determination of the size of the asbestos deposits. If these bedding plane and thrust faults are not extensive, the asbestos deposits are apt to be limited to the limestone that was opened up by the diabase.

This combination of structural conditions and the narrow zones of favorable beds, causes a complicated problem in prospecting because it causes the localization of the asbestos in lenses. These lenses are scattered over an area of perhaps 100 square miles. In the bulk of this area the asbestos-bearing beds are covered by a deep mantle of overburden and cap rocks and the favorable structures are often hidden. The geological formations are mainly horizontal in posture, but locally may be titled or offset by block or normal faults. Fortunately, with a few exceptions, the normal faults have little throw. The tilted-block type of faults are more consequential. The topography is not altogether characteristic of normal horizontal erosion types, except in the north Cherry Creek region. Deep boxed or precipitous canyons are often cut through the Apache formation into older rocks. So far, the bulk of the asbestos has been discovered in the steep faces on both sides of the canyons. This means that access from main roads is steep and costly to provide. Many of these intervening areas are of considerable areal extent and are now hidden. In view of the present costs of tunneling, it seems that prospecting for new deposits would best be done by drilling, as would the development of known deposits.

The DESIGN ENGINEERING SHOW, taking advantage of the opening of Cobo Hall, will move to Detroit, Michigan, for the first time in 1961. The exposition and the concurrent conference will take place May 22 through 25, it was announced by Clapp & Poliak, Inc., New York exposition management firm, which produces the show.

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ELECTROSTATIC DUST COLLECTOR PLANT

An electrostatic dust collector which has just been developed by Collectron Industries Limited, of Johannesburg, has been acclaimed as a major advance in the design of dust extraction plant, and is said to be capable of handling virtually any kind of dust.

The unit employs the principle of electrostatic attraction; a fan draws the dust-laden air through the filter, and the particles (which are positively charged) are caught by the collecting electrodes. The air stream can be regulated to vary the extraction rate as required.

The unit is said to handle particles of coal, magnetite, cement, soot, silicates, fibrous materials and other kinds of dust.

A number of tests with a pilot plant have been carried out. With Cape blue asbestos dust, mica dust, cement dust and magnetite dust, the unit is reported to have given efficiencies of 99%, 92%, 99% and 99%, respectively.

Below the filters can be fitted hopper tanks in sizes according to the amount of dust handled, and fitted with vibratory channels to facilitate automatic dust removal on to a conveyor belt system.

Depending on densities on pounds/cubic feet and velocity, says Collectron, the unit can handle up to 200 pounds per hour for each single cell.

A series of tests now completed by the Council for Scientific and Industrial Research are reported to confirm the very high efficiency claimed by the company. Material used for the tests was from Kuruman Cape blue asbestos, producing dust particles ranging from between 0.25 to 5.0 microns and asbestos fibre particles between 0.5 and 200 microns.

Working at an air velocity of 350 feet per minute and feeding dust at the rate of 0.4 pounds per minute, the dust concentration of the air feed was about 50,000 particles plus 18,000 fibres/cc. Dust concentration leaving the last series of plates was about 1,100 particles plus 200 fibres/cc. This gave efficiencies of 97.9% for the dust particles and 98.8% for the fibres in the air finally discharged.

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unit at the Kuruman Cape Blue asbestos mine, in Kuruman. This has an overall length of 59 feet. Each pre-filter has an area of 210 square feet and it is equipped with 35 efficiency cells each of the same area. Collectron claims a 90% efficiency for this unit, which has a handling capacity of 1,000 pounds per hour of blue asbestos dust (or 22 cubic feet per hour of any dust) running at 75,000 cubic feet per minute with an air speed of 340 cubic feet per minute.

ARTHUR S. HAYESLIP Vice President—Sales of the *Huyck Felt Company* has retired after more than 41 years of service. During this time, he served as Head of the Production Planning Department, Sales Manager, and in other supervisory capacities. He has traveled to paper mills throughout the United States and is widely known in the paper industry.

Under Mr. Hayeslip's direction, the nationwide Huyck sales organization has expanded to meet better the needs of the paper industry. To him belongs much of the credit for the continuing increase in the many valuable Huyck services offered papermakers.

A native of Manchester, New Hampshire, he joined Huyck in 1919. During World War I he served with the Heavy Field Artillery in France. He belongs to the Canadian Club of New York and the University Club of Albany. Mr. Hayeslip is also a life member of the Wadsworth Lodge, F. & A. M.

Effective January 9, 1961, the Quebec Asbestos Mining Association made a major revision in shipping tests for Group 3 fibres and established additional grades in Groups 4 and 5, namely, 4A and 5F.

"ASBESTOS" has amended its booklet "*Canadian Chrysotile Asbestos Classification*" to include these changes and copies of this revised booklet are available from "ASBESTOS", 807 Western Saving Fund Building, Philadelphia 7, Pennsylvania (Price: 35¢ per copy).

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JOHNS-MANVILLE companies in France and Italy have established two plants to make refractory products for distribution in the European Common Market.

Existing structures have been obtained and are now producing refractory products at Niguarda, a suburb of Milan, Italy, and at St. Marcellin, France, according to Dudley T. Colton, Vice President, Johns-Manville International. "Addition of these two plants establies J-M companies as leading producers of insulating block and fire brick in the expanding European Common Market.

J-M companies also operate a perlite filter aid plant at Hull, England, an asbestos-cement products plant at Mol, Belgium, and an industrial packings plant at Mexico City. In addition, J-M companies are substantial suppliers of diatomite, asbestos fibre and finished products to overseas markets.

The Italian and French plants bring to 44 the number of manufacturing facilities now operated by Johns-Manville companies in the United States, Canada, Mexico, Great Britain and the Continent.

KEASBEY & MATTISON COMPANY has made available a four-page folder describing a unique flexible asbestos-cement structural sheet. The folder illustrates some of the many uses for this unique bendable KAMFLEX sheet and lists all significant physical properties.

Copies of this Folder (BM-231) can be obtained from Keasbey & Mattison Company, Ambler, Pennsylvania.

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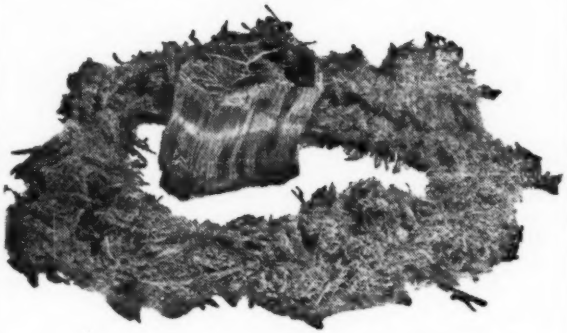

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CSR BUILDING PRODUCTS

UNITED STATES RUBBER COMPANY expects to increase its participation in missile development and production, George R. Vila, President, said recently in announcing the formation of a *Rocket Motor Group* within the company. The Group has been established to help expand the company's role in the nation's defense and space effort.

Christy H. Madsen, who is now Product Manager of Rubber and Chemicals in the company's Naugatuck Chemical Division, has been appointed Coordinator of the Rocket Motor Group. Other members will be *Paul Blunt*, now the Government Contract member of Naugatuck Chemical's Commercial Development Department in Naugatuck, Connecticut; *Raymond A. Herrly*, Coordinator of New Products and Processes, Footwear and General Products Division; and, *Dr. Ernest J. Joss*, Coordinator of Military Research Contracts for the company's Research Center in Wayne, New Jersey.

PROMENADE TILE, a traffic-bearing, fire-proof roof tile of asbestos-cement, is described in a four-page folder recently published by *Keasbey & Mattison Company*, building materials manufacturer. The folder illustrates some of the product's uses in providing usable roof space for commercial, industrial and recreational purposes, and gives condensed data on sizes and weights available.

Copies of the above folder (BM-243) are available from Keasbey & Mattison Company, Ambler, Pennsylvania.

POLYREZ

PHENOLIC RESINS IN
Liquid, Lump and Powder
For All Friction Materials.

POLYREZ COMPANY, INC.

RAILROAD & SO. COLUMBIA WOODBURY, N. J.

CONTRACTORS

*save money on "BlueMud"!**

New Carey-Canadian 7M-90 has the following advantages • Trowels easier—reduces labor costs • Whiter finish • 15% less shrinkage • 10% more dry coverage • Hard, non-dusting surface • Competitively priced to save you money.

*Trade vernacular for 7M Asbestos Shorts

Note these laboratory-proven differences in shrinkage and whiteness between Carey-Canadian 7M-90 and a well known competitive 7M.

	Carey 7M-90	*Brand X*
Shrinkage (volumetric)	33.7%	44.3%
Wet Coverage (1-1 ratio)	28.5 Bd. Ft.	27.7 Bd. Ft.
Dry Coverage	18.9 Bd. Ft.	15.5 Bd. Ft.

Information and samples may be obtained from your Carey Asbestos Fibre Sales Engineer or by contacting Carey-Canadian Mines, Ltd., P. O. Box 95, Lockland, Cincinnati 15, Ohio, or Carey-Canadian Mines, Ltd., East Broughton Station, P.Q., Canada.

Carey®

MARKET CONDITIONS

GENERAL BUSINESS.

General business conditions remain quite spotty. Most of the automakers have curtailed production in an effort to bring inventories into line with demand. The bad weather particularly in the East has sharply affected car sales as well as activity in many other lines. Unemployment in general has increased and in many areas has reached the point where such areas are officially considered depressed. The administration has taken cognizance of the recessionary situation, in fact in some quarters it is felt there has been possibly too much official talk about the sickness of the economy, which talk contributes nothing to a more confident sentiment on the part of the general public. The brightest spot in the entire picture has been the stock market which has, by its upward progress on high volume, indicated an underlying confidence in the future on the part of private and institutional investors. This action could well presage better business conditions later in the year.

ASBESTOS—RAW MATERIAL.

January 1961 asbestos fibre shipments at 54,245 tons were 4,354 tons or 7% lower than the same period last year.

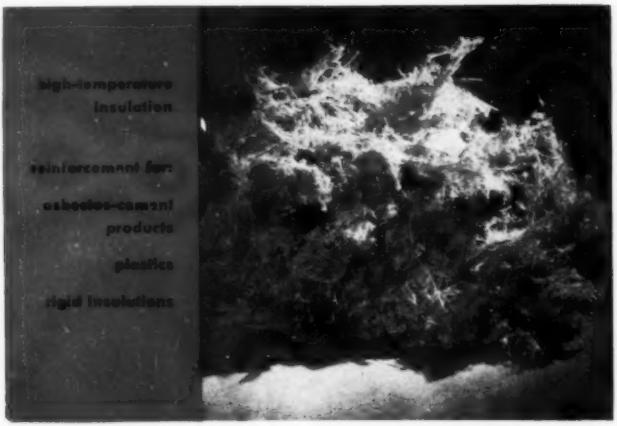
However, 1961 shipments are expected to surpass those of 1960 by approximately 10%. It is anticipated that increased activity in the export market will attribute to this uptrend with the domestic market remaining at the 1960 level.

All fibre grades are in ample supply at this time of the year with navigation relatively at a standstill.

ASBESTOS—MANUFACTURED GOODS.

Asbestos Textiles. The market situation at present is much the same as reported last month but is expected to improve during the next few months.

Asbestos Brake Lining. The present market situation for this product remains good and this condition is ex-



many industries find many uses for

AMOSITE asbestos fiber

Longest-fibered of all asbestiform minerals, Amosite, when fiberized, increases many times in volume. The rod-like nature of the long, minute fibers keeps the mass open, bulky, resilient. Learn how you can benefit by the unique characteristics of this form of asbestos from the world's largest producers of Amosite.

NAAC

in the United States

NORTH AMERICAN ASBESTOS CORPORATION

Board of Trade Building • Chicago 4, Illinois

In Canada

CAPE ASBESTOS (Canada) Limited

200 Bloor Street East • Toronto, Ontario • Canada

Subsidiaries of The Cape Asbestos Company Ltd. • London

pected to continue during the second quarter of this year.

Asbestos Paper. Orders for this material have slowed down considerably and prices are very competitive for that business which is available. It is expected that volume will be somewhat the same as in the corresponding period of last year. The market for *Asbestos Millboard* seems a little stronger and it is anticipated that sales for 1961 will be about 5% to 8% ahead of last year. The market for *Asbestos Saturated Paper* is seasonally slow but improvement is expected during the second and third quarters of this year.

High Pressure Insulation. Orders for this material are coming in much better than anticipated for this time of the year. There is a lot of work now in the planning stage which should increase business later on in the year.

Shingles—Roofing & Siding. Considering bad weather conditions during the first two months of this year, the volume for this material has been fairly good and is equal or somewhat better than the same period in 1960.

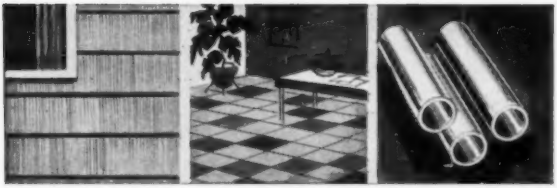
The above comments have been made by various informed executives in the Industry. All comments are welcome.

"Caposite" amosite asbestos "Rocksil" rock wool and "Marinite" asbestos sheet — insulation materials all made by the CAPE ASBESTOS GROUP — are being widely used in the construction of the new P & O liner *Canberra* now being built at Harland and Wolff's Belfast shipyard.

SMITH & KANZLER CORPORATION has just published two very interesting brochures covering the use of *SprayCraft*. One brochure deals with the fireproofing application of SprayCraft, fire resistive ratings, specifications, etc. The other publication deals with the use of SprayCraft for acoustical and thermal insulation applications.

Copies of these two brochures are available from Smith & Kanzler Corporation, 1414 East Linden Avenue, Linden, New Jersey.

High grade asbestos fibers produced to your needs



Shingle and siding stock, floor tiles, brake linings, insulating coatings, pipe or plastics – name your product–Flintkote's research laboratories are completely equipped to determine and recommend the grade and characteristics of asbestos fiber your product needs. Flintkote Mines extensive facilities mill fibers to meet every requirement!

If asbestos fiber is a factor in your manufacturing process, call or write Flintkote for a quick answer to any problem.

Flintkote Mines, Ltd.

(Subsidiary of the Flintkote Company) Thetford Mines, P.Q., Canada · New York Office: 30 Rockefeller Plaza, New York 20, N.Y.

FLINTKOTE®

· Toronto Office: 30th Street, Longbranch, Toronto, Ont., Canada · London Office: Adam House, 1 Fitzroy Square, London W-1, England

BUILDING

Contracts for future construction rose 13% in January 1961 to $2,485,050,000, a new all-time high for the month, F. W. Dodge Corporation reported. The January gain in contracts marked the sixth consecutive month to show an increase over year-earlier levels.

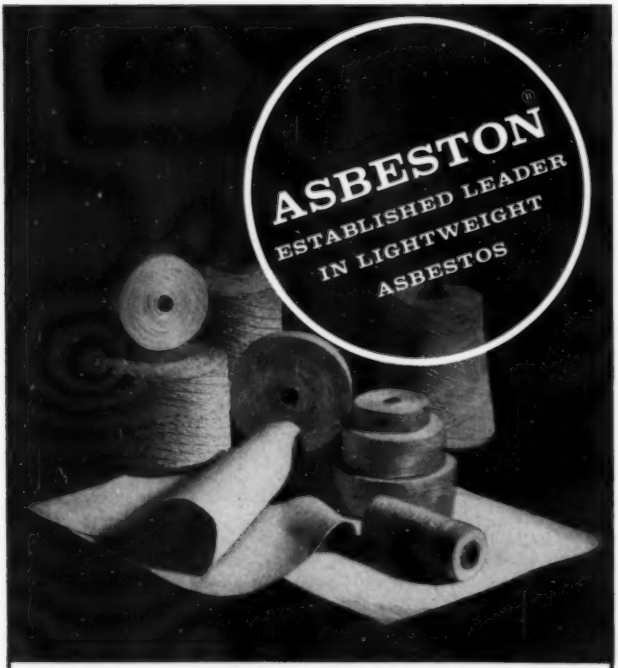
Commenting on the January figures, Dr. George Cline Smith, Dodge Vice President and Chief Economist, said that "all three major construction categories—non-residential building, residential building, and heavy engineering—contributed to the rise, with particularly sharp increases reported for highways and electric light and power systems. The high level of contracts in January lends further support to our earlier expectation that construction would prove to be the brightest spot in the economy in 1961, and would prove instrumental in reversing the current decline in general business activity."

Non-residential building contracts in January totalled $813,245,000, up 1% over a year ago. Sharp gains were reported in contracts for hospitals and for public buildings, and a modest increase occurred in educational buildings. Most other non-residential building types were below year-earlier levels.

Contracts for residential buildings in January amounted to $973,803,000, an increase of 5% over January 1960. Most of the rise, however, was accounted for by sharp gains in contracts for apartment buildings and for hotels, while single-family homes continued below year-earlier levels. The number of dwelling units represented by the January residential contracts totalled 69,072, down 5% from last year.

January heavy engineering contracts were valued at $698,002,000, up 50% over the corresponding month last year. Substantial increases were scored in contracts for highways, electric light and power systems, and water supply systems.

A summary of the latest figures follows: non-residential building $813,245,000, up 1%; residential building $973,803,000, up 5%; and, heavy engineering $698,002,000, up 50%—total construction $2,485,050,000, up 13%:



When you need asbestos in any textile form, specify ASBESTON . . . for twenty years the leader in lightweight asbestos textiles.

And when unusual or special high-temperature conditions must be met, call on our experienced technicians to adapt the unique ASBESTON spinning process to the special yarns or fabrics you need.

For detailed information on how ASBESTON yarns, fabrics or tapes can serve you best, write us today.

Textile Division

US RUBBER **United States Rubber**

Rockefeller Center, New York 20, N.Y.

International Ore Trading Company
"Wambersie" Ltd.
Calandstraat 7A
P.O. Box 1102
Rotterdam

Paris, France
Wambesco (France) S.A.
1, rue Volney

Madrid — Spain
E. Erhardt y Cia Ltda
Avda. Generalisimo 8

Stockholm — Sweden
A. B. Industrimetoder
P.O. Box 5168

Oslo — Norway
Chr. J. Dahl
P.O. Box 166

Helsinki — Finland
Oy Connector A/S
Eriksgatan 24

Copenhagen — Denmark
M. Clausen A/S
Amaliegade 8

The British Metal Corp. (Canada) Ltd.
121 Richmond Street West
Toronto, Ontario, Canada

UNITED KINGDOM

Brandhurst Co., Ltd.
Vintry House
Queen Street Place
London EC-4, England

WEST GERMANY

F. W. Hempel & Co.
Am. Wall 127
Postfach 1350
Bremen, West Germany

Sydney **AUSTRALIA**

The British Metal Corp. (Australia) Pty. Ltd.
Kindersley House
Bligh/O'Connell Streets
Sydney, N.S.W., Australia

NOW...

COVERAGE

Melbourne
The British Metal Corp. (Australia) Pty. Ltd.
Coates Building, 18-22 Collins Street
Melbourne C.1, Australia

NEW ZEALAND

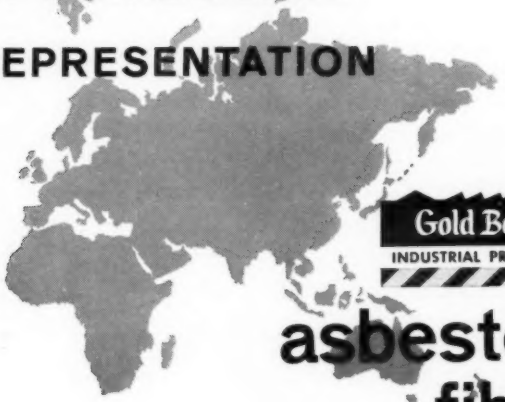
Mr. C. H. Wood
P.O. Box 2818
Wellington, New Zealand

Sao Paulo **BRAZIL**

Tennant Importacao E. Exportacao Ltda.
Caixa Postal 7284, Sao Paulo, Brazil

Rio de Janeiro
Tennant Importacao E. Exportacao Ltda.
4 Avenida Branco S. 1407/9
Rio de Janeiro, Brazil

COMPLETE OVERSEAS
BY ESTABLISHED
REPRESENTATION



Gold Bond
INDUSTRIAL PRODUCTS

asbestos fibre

PERU

Tennant (Peru) S.A.
Edificio del Castillo
Av. Nicolas de Pierola 611, Dpto. 83
Lima — Peru

JAPAN

Mitsui Bussan Kaisha Ltd.
2nd Sundries Section
P.O. Box 822
Tokyo Central
Tokyo, Japan

INDIA

Bombay

The British Metal Corp. (India) Private Ltd.
P.O. Box 1729
Steelcrete House—
Dinsha Waccha Road
Bombay, India

Calcutta

The British Metal Corp. (India) Private Ltd.
United India Life Building
P.O. Box 743
22 Chittaranjan Avenue
Calcutta, India

PAKISTAN

The British Metal Corp. (Pakistan) Ltd.
5 West Wharf Road, P.O. Box 4910
Karachi 2, Pakistan

USVICO **ITALY**

Societa Industriale Commerciale
Via Generale Albricci 8
Milano, Italy

SWITZERLAND

Chemische Fabrik Schweizerhall
Elsasserstrasse 229
Basel, Switzerland

AUTOMOBILE SALES

	December 1960
Passenger Cars	520,714
Motor Trucks	92,940
Motor Coaches	251
	613,905

In December 1959, a total of 548,320 motor vehicles were sold. Sales for the year 1960 amounted to 7,869,271.

These figures were supplied by the Automobile Manufacturers Association, New Center Building, Detroit, Michigan.

KEASBEY & MATTISON COMPANY highlights its line of asbestos-cement building materials in a new 4-page folder.

Included in the folder are briefed features and specifications on T-Deck roof decking, corrugated asbestos-cement for roofing and siding, Promenade flat roofing tile, "KolorMate" finish on decorative asbestos-cement sheets, Shake Shingles, and K&M asbestos-cement air duct for heating, air conditioning and ventilation. It is illustrated with colorful drawings which give the reader tips on some of the product's many uses in residential, industrial and commercial construction.

Copies of this folder are available from Keasbey & Mattison Company, Ambler, Pennsylvania.

PIPE COVERING PROTECTORS

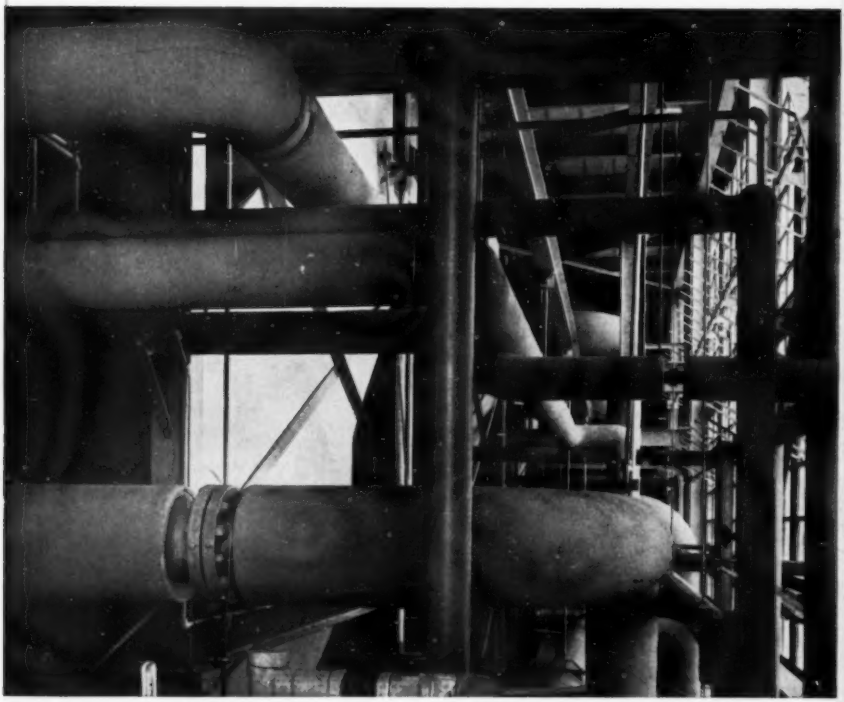
The "Royal" All Aluminum Adjustable and Permanent Protector for Pipe Covering-ends. Easy to Apply . . . Prompt Shipment.

THE PROTECTOR CO. SO. BOSTON 27, MASS. • **GRANT WILSON, INC.** CHICAGO 4, ILL.

ONLY APPROVED CONTRACTORS INSTALL B-E-H INSULATIONS

The THERMALITE 85% Magnesia Insulation in this boiler room is typical of the faultless work of B-E-H approved contractors. Only men fully skilled in the application of B-E-H products are entrusted with their installation. Result: Full insulating value and long, trouble-free service life with economical heating.

Standard inventories of THERMALITE are maintained by distributors in all principal cities. For the full story of this money-saving insulating material, see your B-E-H Distributor or write direct for new Catalog to the address below.



Typical THERMALITE installation. THERMALITE has unusually low thermal conductivity, is molded to exact shape, assuring tight joints and snug pipe fits essential for maximum heat economy.

BEH
BALDWIN-EHRET-HILL

BALDWIN-EHRET-HILL
500 Breunig Avenue Trenton 2, New Jersey

AFRICA (Rhodesia)

(Published by Rhodesian Mining and Engineering)

Tons 2,000 lbs.

Production for December 1960	11,115.90
Valued at	£619,210.00
Production for December 1959	8,406.57
Valued at	£532,840.00

CANADA

(Dept. of Mines, Province of Quebec)

Tons 2,000 lbs.

Production for December 1960 (Quebec)	58,065
Other Provinces	4,078
	62,143

Total production for December 1959 was 72,048 tons.

UNION OF SOUTH AFRICA

(Quarterly Information Report—Dept. of Mines)

Tons 2,000 lbs.

	3rd Quarter (July, August & September 1960)				
	Production	Local Sales		Exports	
	Tons	Tons	Value	Tons	Value
Amosite	16,978	244	£ 9,143	22,071	£1,031,447
Chrysotile ..	7,629	1,163	37,658	4,839	231,122
Cape Blue ..	17,451	558	39,827	19,996	1,442,480
Transvaal Blue	2,757	11	648	2,221	151,745
Tremolite ..	..	3	63	..	..
	44,815	1,979	£87,339	49,127	£2,856,794

asbestos cement department

TORINO - VIA S. TERESA 10 - ☎ 55.35.76 - 52.41.33

NOTICE

The R.C.M. Company (Revisione Costruzione Macchine) - 10, Via Santa Teresa - Turin - Italy, wishes to inform that anybody interested is invited to visit a very modern Factory in Italy where an R.C.M. automatic installation is in working activity for the manufacture and finishing of Asbestos-Cement pressure and non-pressure Pipes, also of small diametre.

Examination of this installation will clearly show the results reached by the R.C.M. Company in the construction of machinery for the Asbestos-Cement Industry.

This machinery permits the use of lower priced asbestos mixtures while producing the same quality product in accordance with the standards now in force.

Imports Into U.S.A.

(Figures by Bureau of Census)

Unmanufactured Asbestos:

	October 1960 Tons (2,240 lbs.)
From: Canada	47,839
Union of South Africa	2,262
Yugoslavia	541
Rhodesia (Ny)	277
Other Countries	16
	50,935
Valued at:	$5,008,728

By Grades:

Crude,	No. 2,	Chrysotile	3
Crude,	Other,	Chrysotile, Canada	131
Crude,	Other,	Chrysotile, Yugoslavia	541
Crude,	Other,	Chrysotile, U. of S. Africa	429
Crude,	Other,	Chrysotile, Rhodesia (Ny)	147
Crude,	Blue,	Union of South Africa	821
Crude,	Amosite,	Union of South Africa	861
Textile	Fiber,	Chrysotile, Canada	1,110
Shingle	Fiber,	Chrysotile, Canada	5,689
Paper	Fiber,	Chrysotile, Canada	2,955
Other	Fibers,	Chrysotile, Canada	37,954
Other	Fibers,	Chrysotile, U. of S. Africa	151
Other	Fibers,	Chrysotile, Rhodesia (Ny)	130
Other	Fibers,	Chrysotile, Other Countries	13
			50,935

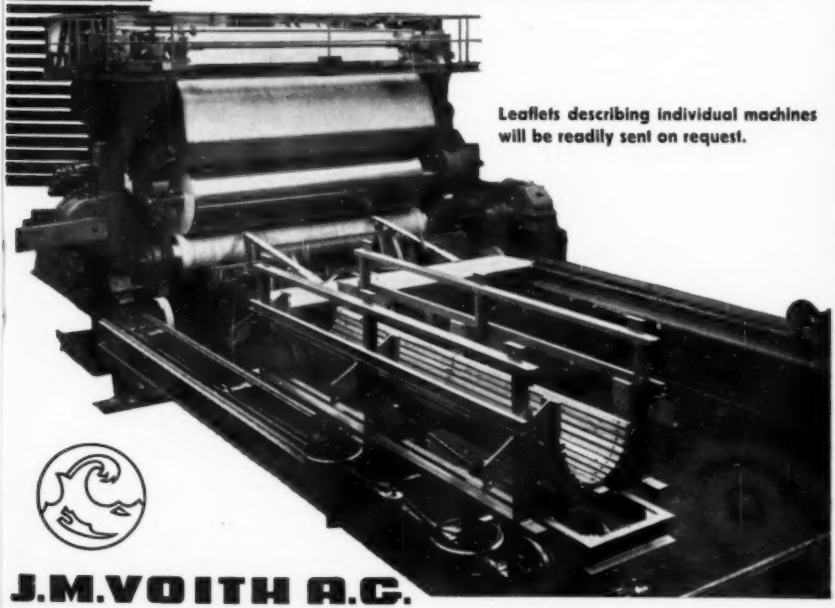
Manufactured Asbestos Goods:

	October 1960 Quantity (lbs.)	Value
Asbestos Yarn, Canada	24,425	$ 24,537
United Kingdom	23,009	14,318
Other Countries	17,821	8,941
Asbestos Packing	67,358	17,838

All machinery for the equipment of plants producing asbestos-cement pipes and sheets

covering the entire production process from the stock preparation to the testing of the finished product.

All machinery for wet or dry preparation of asbestos-cement / Asbestos silos.
Sheet producing machines with one to three cylinder moulds, automatic or semi-automatic combined production lines for flat and corrugated sheets.
Piling equipment combined with cleaning and lubricating machinery for flat and corrugated steel sheets, suitable also for automatic operation / punching and trimming machines / hydraulic presses.
Pipe winding machines for the production of pressure pipes of up to 5 metres (16 ft. 5 in.) length and 1000 millimetres (3 ft. 3 in.) dia / lathes for pipes and joints / cut-off grinders / testing presses for pipes and joints / calenders for the forming of plain and joint-fitted pipes / mandrel pull off machines / autoclaves for hardening of asbestos-cement sheets and pipes as well as many other units, pumps and accessories.



Leaflets describing individual machines will be readily sent on request.

J.M.VOITH A.G.

St. Poelten – Austria
P.O.B. 168 / Tel. 2501 / Teletype 01 510

Asbestos Shingles (Impregnated)		
Belgium	311,119	51,722
Other Countries	121,689	5,854
Asbestos-Cement Pipe & Fittings		
(Not Impreg.), Mexico	1,708,140	146,271
Belgium	867,221	60,187
W. Germany	534,001	26,941
Austria	656,342	33,859
Italy	2,229,701	90,713
Japan	220,662	13,179
Asbestos-Cement Mfgs. Other		
(Not Impregnated)	82,498	4,477
Asbestos Manufactures — Others	..	2,288
	6,863,986	$501,125

Exports From U.S.A.

(Figures by Bureau of Census)

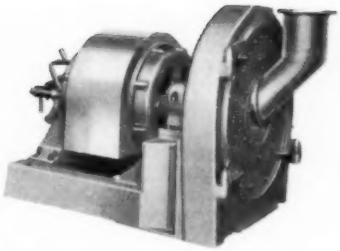
Unmanufactured Asbestos:

	November 1960	
	Tons (2,240 lbs.)	Value
To: Europe	271	$ 35,877
Canada	174	22,212
Mexico	49	4,988
South America	27	11,007
United Kingdom	18	1,880
Other Countries	49	19,910
	588	$ 95,874

Manufactured Asbestos Goods:

	November 1960	
	Quantity	Value
Asbestos Cement & Pipe Covering .Lbs.	582,477	$ 162,020
Asbestos Textiles & Yarn .....Lbs.	46,571	45,369
Asbestos Packing .....Lbs.	255,829	254,020
Asbestos Clutch Facing .....No.	76,640	65,622
Asbestos Bk. Lng. (Mld.&S.Mld.) Lin.Ft.	68,756	54,939
Asbestos Brake Lining, Other .....Lbs.	494,810	350,917
Asbestos Construction Material ....Lbs.	2,071,811	227,914
Asbestos Manufactures — Others	..	61,515
		$1,222,316

Bauer



Single Revolving Disc Mills

for your wet grinding

In this type of mill, one disc rotates while the other remains stationary.

These famous Bauer machines are used for wet applications in the asbestos industry . . .

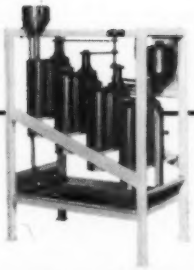
1. To reduce coarse particles—1/16" and larger.
2. To deflock fiber bundles in asbestos slurry, for the production of both paper and cement.

Our mills are adaptable to many specific purposes. We take pride in engineering installations to meet exact requirements. When we encounter new problems, we make tests in our fully equipped research laboratories.

You are invited to consult with us.

THE BAUER BROS. CO.
1826 SHERIDAN AVE.
SPRINGFIELD, OHIO

CANADIAN AGENTS:—Lynn Macleod Engineering Supplies Ltd., Thedford Mines, P.Q.
EXPORT AGENTS:—M. Neumunz & Son, Inc., 90 West St., New York 6, N.Y.



Bauer-McNett Classifier

A widely used device for classifying any sample of slurry into a number of fractions, each containing fibers of the same approximate length. Ask for literature.

Exports From Canada

(Published by Dominion Bureau of Statistics)

Unmanufactured Asbestos:

	November 1960	
	Tons (2,000 lbs.)	Value
Crude		
United States	1	$ 800
United Kingdom	..	..
South America	..	..
Central America & Mexico	..	..
European Countries	11	11,765
Other Countries	2	1,510
	14	$ 14,075
Milled		
United States	12,084	$ 2,528,158
United Kingdom	4,097	836,586
South America	3,318	598,224
Central America & Mexico	1,250	213,968
European Countries	10,242	1,986,019
Other Countries	9,496	1,527,445
	40,487	$ 7,690,400
Shorts		
United States	36,680	$ 1,935,890
United Kingdom	2,228	124,936
South America	735	50,825
Central America & Mexico	275	19,252
European Countries	7,321	379,626
Other Countries	6,097	516,064
	53,336	$ 3,026,593
Grand Total— Unmanufactured Asbestos:	93,837	$10,731,068
Manufacture Asbestos Goods:		
Brake Lining		$ 42,808
Packing		..
Other Materials		58,918
		$ 101,726

NEWARK HAIR FELT COMPANY
LOW TEMPERATURE INSULATION
1000 Maple Avenue
LANSDALE, PENNA.

DURASORB

FELTS for Asbestos Cement Products

Give Better:

- **FINISH**
- **DRAINAGE**
- **LIFE**

Our sales engineers and designers have succeeded many times in improving one or more of these essential production features. We can help you too.

TALK IT OVER WITH YOUR ALBANY FELT SALES ENGINEER

NEWS OF THE INDUSTRY

HAPPY BIRTHDAY

Colon Brown, Vice President in Charge of Corporate Development, National Gypsum Company, Buffalo, New York, March 17.

Emil T. Johnson, Senior Vice President, Fibrous Products Division, Union Asbestos & Rubber Company, Bloomington, Illinois, March 21.

John H. Balch, Senior Vice President & Treasurer, Union Asbestos & Rubber Co., Chicago, Illinois, March 22.

Grady B. Gulledge, Director & General Manager, Apache Asbestos Mines, Inc., Globe, Arizona, March 23.

George Barge, Director & Vice President—Finance, Keasbey & Mattison Company, Ambler, Pennsylvania, March 27.

J. T. Griffis, Sales Manager, H. K. Porter Company, Inc., Thermoid Division, Charlotte, North Carolina, March 28.

J. A. O'Brien, Vice President for Sales, Johns-Manville Corporation, New York City, March 28.

Lord Elton, Director, The Cape Asbestos Company Limited, London, England, March 29.

F. V. S. Smith, Director & Secretary, Hodgson & Hodgson Limited, Carrington, Nottingham, England, March 29.

W. C. Bowman, District Manager, The Philip Carey Manufacturing Company, Philadelphia, Pennsylvania, March 30.

J. M. Weaver, Retired, Raybestos-Manhattan, Inc., Manheim, Pennsylvania, April 14.

To all these gentlemen we extend congratulations and best wishes on the occasion of their birthdays.

THE ASBESTOS INDUSTRY IN 1960—PRELIMINARY
MMS NO. 3152

Short Tons

Estimated world production of asbestos in 1960 was 2,380,000 tons, which is slightly higher than the 1959 figure of 2,270,000 tons, due to increases in Canada and Russia. Apparent consumption, however, fell in 1960 to 733,800 tons from 753,911 tons in 1959. Production in the United States for 1960 was 46,000 tons compared to 45,325 tons in 1959, according to estimates submitted to the Bureau of Mines, U. S. Department of the Interior. United States imports of asbestos decreased from 713,047 tons in 1959 to about 690,000 tons in 1960. Exports in the United States for 1960 were 2,200 tons compared to 4,461 tons in 1959.

ASBESTOS FIBRE

OF ALL TYPES

BRANDHURST COMPANY LIMITED

Vintry House

LONDON

E. C. 4

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Hans H. Dirzuweit has been appointed to the position of Director of Felt Development and Physical Research of HUYCK FELT COMPANY, Rensselaer, New York, effective February 1, 1961.

In his new post, Mr. Dirzuweit will be responsible for the administrative supervision of the activities of felt development. Dr. Dan B. Wicker, Vice President for Research and Development, noted that it is the intention of Huyck to strengthen its Research and Development program in order to continue the Company's industry leadership in the area of Research and Development. "Mr. Dirzuweit's training and background suit him ideally for the responsibilities of the position he will assume."

William C. McClure has been appointed to the position of Felt Sales Engineer for New Hampshire, Vermont and Northeastern New York by the HUYCK FELT COMPANY of Rensselaer, New York. Prior to this appointment, Mr. McClure served as Field Assistant to the Sales Manager.

Mr. McClure was one of the first men to suggest the establishment of the Huyck Felt Workshop program which will hold its fifth annual series during 1961. The purpose of the Workshop programs is to establish better communications between papermakers and feltmakers. In so doing, contributions are made to the improvement of paper products for the American economy.

Melvin W. Searls has been appointed to the newly-created post of Merchandising Director in the Building Products Division of THE FLINTKOTE COMPANY. He will coordinate and develop the marketing program for the Building Products Division, and will be directly responsible for the activities of the Merchandising Managers in the Building Products Section. Besides his new duties, Mr. Searls will continue to supervise the Insulrock Division.

Thomas J. McDonald has been named to the newly-established position of Sales Director in the Building Products Division of THE FLINTKOTE COMPANY. He will assume direct responsibility to coordinate the field selling activities of the building products sales organization through the regional offices.

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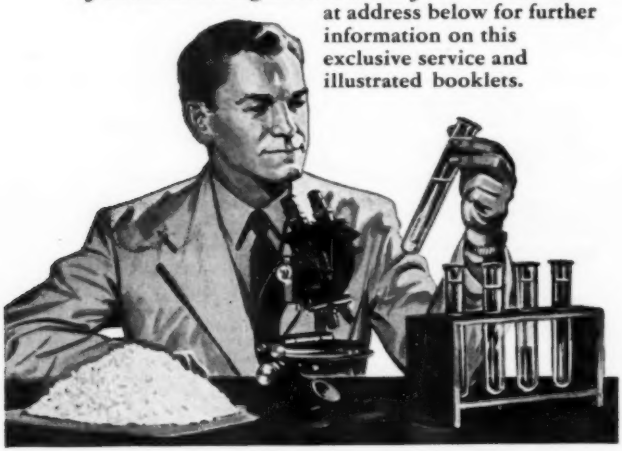


Asbestos Fibre Division

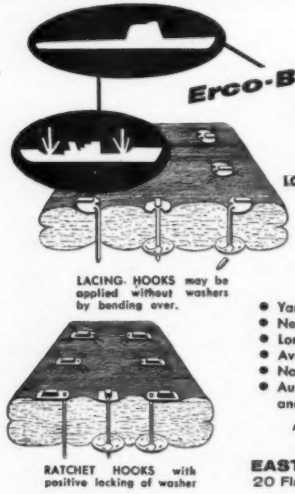
Canadian Johns-Manville Co., Ltd.
Asbestos P.Q., Canada; Telephone: Asbestos 100

H. L. Krout, Jr. has been appointed Assistant District Manager of KEASBEY & MATTISON COMPANY's Ambler Pipe District. He was Sales Supervisor, Northeastern Pipe District, since September 1959.

Mr. Krout joined K&M in 1948 as an expediter in the Building Materials Sales Department; was later transferred to asbestos-cement pipe sales in the same capacity. He was named General Assistant to the Manager of the Pipe Department in 1950. In 1951, he became a Salesman in K&M's New York District.

Alfred H. Macgillivray has been appointed Works Manager of the ROCKBESTOS WIRE & CABLE COMPANY, *Division of Cerro Corporation*. Previously Production Manager at the Rockbestos main plant in New Haven, Connecticut, Mr. Macgillivray's promotion puts him in charge of plant engineering, production, personnel and purchasing.

Rockbestos makes a broad line of insulated wire and cable, especially developed for use in industrial maintenance and construction and public utility applications and is an important supplier to the aircraft, missile and electronic industries.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THE AUSTRALIAN MINERAL INDUSTRY—1959

The upward trend of Australian domestic asbestos production was maintained in 1959. The increase was solely in crocidolite (blue asbestos) production at Wittenoom, Western Australia, where milling capacity has been substantially increased; production of chrysotile was below the 1958 level. In line with increased production there was a sharp increase in exports; imports were at about the same level as in 1958.

During 1959 world production of asbestos increased by about 10%, as near normal buying was resumed by consuming industries. Despite an improvement in demand. ample supplies of asbestos were available and competition continued to be very keen.

Short Tons	*Year 1959*
Australian production	17,875
Exports	12,974
Imports	38,330
Apparent consumption	43,231

THE FLINTKOTE COMPANY

Foreign Operations

The Flintkote Company of Canada continued in 1960 its improvement in earnings and growth. The acquisition of King Paving Company Limited in January of 1960 constitutes a substantial step forward in the Company's Canadian operations and the combined efforts of these two subsidiaries is progressing very satisfactorily. Flintkote Mines Limited, which mines and mills asbestos fibre, continued to operate on a profitable basis. With the acquisition of gysum rights in Newfoundland in 1961, Flintkote's participation in the Canadian economy will increase measurably.

The Flintkote Company Limited, the company's British subsidiary, with a worldwide sales network, reported substantially increased sales and earnings for 1960. The operations of Flintkote France S.A.R.L. continued to show good progress. Enfield Chemicals Limited, acquired by The Flintkote Company Limited during the year, will provide a useful degree of diversification for the latter's operations and also scope for expansion into more specialized industrial fields.

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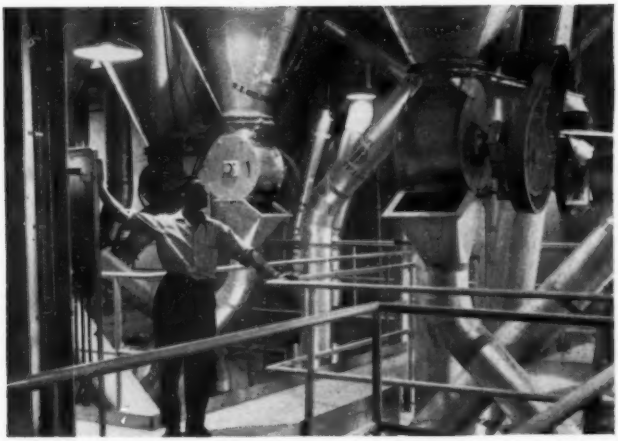

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Agencies Kapel Ltda., Santiago

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ENGLAND
(for U. K., Spain, Portugal)
Metal Traders Ltd.,
Asbestos Division, London

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HOLLAND
(for The Netherlands, Belgium, Switzerland)
Kayser and Mackay, Amsterdam

ITALY
Amianto Del Lago, Torino

JAPAN
C. Itoh Co., Ltd., Tokyo & Osaka

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THE PHILIP CAREY MANUFACTURING COMPANY

Annual Report—1960

Net income of The Philip Carey Manuafacturing Company and subsidiaries for 1960 was $2,403,994 or $2.36 per common share outstanding at the year end. This compared with 1959 net income of $3,306,331 or $3.26 per share after adjusting for the 20% stock dividend paid in January 1960. Sales amounted to $69,568,686 compared with $73,203,888 in 1959. In spite of the adverse effects of a reduction in housing starts to a point 18% below the 1959 level and abnormally low prices for asphalt roofing products, Carey's sales were down less than 6% for 1960. These factors, combined with the continued rise in wages and other direct manufacturing costs, contributed substantially to the decline in consolidated net earnings during 1960.

The outlook for 1961 appears to be somewhat brighter. Total construction activity is expected to be up slightly. Based on the best estimates available, the second half of 1961 should be better than the same 1960 period.

THE FLINTKOTE COMPANY

Annual Report—1960

The Flintkote Company, major producer of building materials and other products for home and industry, reported lower sales and earnings for 1960, but I. J. Harvey, Jr., Chairman of the Board and Chief Executive Officer, said the "disappointing" results for last year "are not characteristic of what the company might expect in future years".

Sales for 1960 were $252,171,900 compared with 1959's record-breaking volume of $253,054,691. Net income for 1960 amounted to $12,963,627, equal after preferred dividend requirements to $2.01 on an average of 5,533,262 common shares outstanding compared with $15,068,418, or $2.41 per share on 5,437,461 average common shares outstanding in 1959.

1960 saw another big step taken in the direction of positioning the company's facilities for the interesting marketing opportunities which lie ahead. Through capital expenditures, mergers and acquisitions, Flintkote added $38,065,000 to the $83,784,000 previously committed to the company's program of expansion and diversification which began early in 1956. Plants now number 144 as compared with 42 in 1955.

The company's December 31, 1960 balance sheet showed total assets of $228,370,446, of which current assets amounted to $81,849,582 compared with total current liabilities of $48,156,729. A year earlier total assets were $205,051,685; total current assets were $78,749,929 and total current liabilities $35,754,180.

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JOHNS-MANVILLE CORPORATION

Annual Report—1960

Johns-Manville earnings and sales were lower in 1960 than the record highs set in 1959, according to C. B. Burnett, President, who made public the audited figures for the year.

Net earnings in 1960 were $26,508,000 or $3.12 per share of common stock on an average of 8,483,934 shares outstanding. In 1959, earnings were $31,616,000 or $3.74 per share on an average of 8,451,462 shares outstanding.

Sales were $365,175,000 in 1960, compared with $377,562,000 in 1959.

The decline in earnings was due to lower prices in many product lines coupled with rising costs and decreased sales because of a softening of business in some major industries.

Before taxes of all kinds, J-M earnings in 1960 were $57,350,000, which was $5,405,000 less than in 1959.

Depreciation and depletion in 1960 were $16,790,000, an increase of $7,000 as compared to 1959.

Expenditures for additions to and improvements and replacements of J-M properties, including additional investment in foreign affiliates, amounted to $21,543,000 in 1960, compared with $17,083,000 in 1959.

THE RUBEROID CO.

Annual Report—1960

The Ruberoid Co., a major producer of building materials and industrial specialty products, announced results of its 1960 operations. Net sales for the year were the second largest in the company's 74-year history totaling $120,077,391, which compares with 1959's record volume of $127,307,942. Net income for 1960 amounted to $4,667,852, equal to $2.45 per share on the 1,908,739 average number of shares of capital stock outstanding during the year. For the year 1959, the company reported net income of $6,630,077 equal to $3.49 per share on 1,901,276 average number of shares.

E. J. O'Leary, Chairman and President, said "lower net income resulted from the smaller volume of sales and increased costs of labor and raw material without corresponding adjustments in selling prices for our chief products. As a result of competitive conditions, prices of asphalt roofing products throughout most of 1960 were at a lower level than in the previous year". The executive stated last year's 18% decline in housing starts was the main reason for Ruberoid's drop in sales.

Ruberoid's financial condition remained strong at the close of 1960 with working capital amounting to $33,573,339 compared with $32,508,854 at the end of 1959.

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American Brake Shoe Co.
American Smelting
Armstrong Cork Co.
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Battenfeld Grease
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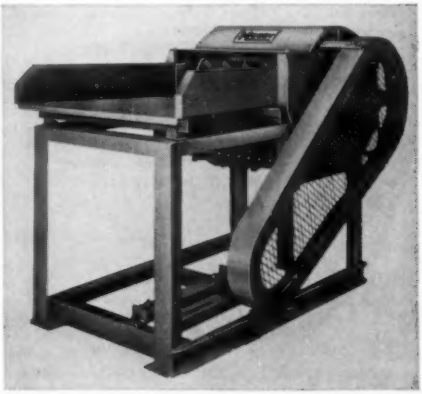
Eaton Mfg. Co.
Flintkote Co.
Grizzly Mfg. Div.
Henry, W. W. Co.
Hooker Chemical Co.
Inland Mfg. Div.
Johns-Manville Products Corp.
Linde Air Products Co.
Marshall-Eclipse Div. of Bendix
National Brick Co.
National Gypsum
Philip Carey Co.
Supradur Mfg. Corp.
Thermoid Co.
Union Asbestos & Rubber Co.
United States Gypsum Co.
Worldbestos

Canada
Asbestos Corp.
Asbestonos Corp.
Atlas Asbestos
Canadian Johns-Manville
Cassiar Asbestos
Husky Oil & Refining Ltd.
Lake Asbestos

Elsewhere
Industria de Asbestos, Dominican Republic
Israel Brake Lining, Israel
Trust, Hubert H. P. & Co., England
Turner Bros., England



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Group-4 (Plastic & Filtration)	190.00	to	250.00
Group-5 (Plastic & Moulding)	125.00	to	177.00
Group-7 (Refuse & Shorts)	60.00	to	100.00

CANADA— Per Ton 2,000 lbs. f.o.b. Mine
Canadian Currency

Group No. 1 (Crude No. 1)	$1,410.00	to	$1,475.00
Group No. 2 (Crude No. 2); Crude Run-of-Mine and Sundry	610.00	to	875.00
Group No. 3 (Spinning Fibre)	350.00	to	650.00
Group No. 4 (Shingle Fibre)	180.00	to	245.00
Group No. 5 (Paper)	120.00	to	150.00
Group No. 6 (Waste, Stucco or Plaster)	..		86.00
Group No. 7 (Refuse or Shorts)	40.00	to	80.00

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Group No. 3 (Spinning & Filtering)	$ 353.00	to	$ 440.00
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Group No. 6 (Waste, Stucco or Plaster)	..		86.00
Group No. 7 (Refuse or Shorts)	41.00	to	75.00

UNITED STATES RUBBER COMPANY

Annual Report—1960

Sales of the United States Rubber Company in 1960 declined 1% while net income was lower by 13.6%, H. E. Humphreys, Jr., Chairman and George R. Vila, President, reported.

Net sales totaled $966,833,000 compared with $976,766,000 in 1959. Net income was $30,737,000, equivalent to $4.45 a share of common stock, compared with $35,580,000 or $5.30 a share in 1959.

Long term debt was reduced from $159,920,000 to $154,672,000 during the year. Net working capital was $318,281,000 at year-end for a working ration of 3.6, compared with $312,222,000 and 3.2 at the end of 1959.

Additions and improvements to property, plant and equipment totaled $26,515,000 in 1960, compared with $25,033,000 in 1959.

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ASBESTOS STOCK QUOTATIONS

(These figures are compiled from the Commercial & Financial Chronicle. No guarantee as to their correctness.)

		February 1961		
	Par	Low	High	Last
Advocate Mines, Ltd.	1	$3.15	$4.50	$3.60
American Brake Shoe	np	40¼	44⅜	44
Armstrong Cork (Com)	1	55¾	59½	56
Armstrong Cork (Pfd)	np	79¾	83½	83
Asbestos Corporation	np	26½	27⅞	26¾
Philip Carey	10	29	33⅜	33¼
Cassiar Asbestos Corp.	np	13	14⅞	13⅛
Celotex (Com)	1	27⅝	31½	29
Celotex (Pfd)	20	17¼	18½	18½
Certain-Teed	1	25⅝	39⅞	37¼
Fibreboard	np	29¼	32⅞	32⅜
Flintkote (Com)	5	28½	34⅛	33½
Flintkote (Pfd)	np	83	86	85
Johns-Manville	5	55¾	69⅜	67
National Gypsum (Com)	1	57	62½	60⅛
National Gypsum (Pfd)	np	93	95½	95½
Porter, H. K.	100	89½	91¾	91
Raybestos-Manhattan	np	64	88½	74¾
Ruberoid	1	41¼	44¾	44½
Unarco	5	7⅜	8⅞	7⅞
United Asbestos	1	$3.85	$4.05	$3.95
U. S. Gypsum (Com)	4	104	115	112¼
U. S. Gypsum (Pfd)	100	154	157	156½
U. S. Rubber (Com)	5	47¾	53⅜	51¼
U. S. Rubber (Pfd)	100	152¼	159	155¾

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PATENTS

Abstracts of U. S. Patents on Asbestos and Asbestos Products by Oliver S. North.

Copies of patents can be obtained by sending 25 cents, (in coin), to The Commissioner of Patents, Washington 25, D. C., giving the patent number, date it was issued, name of patentee and name of invention.

Molded Carriers, No. 2,958,443. Granted on November 1, 1960 to J. L. Hutchinson (assigned to The Richardson Company, Melrose Park, Illinois). A composition used in the making of molded carriers for bottled beverages comprises asbestos fibre and polyethylene or polypropylene.

Method of Molding a Low Density High Strength Shaped Body From a Dilute Slurry, No. 2,958,623. Granted on November 1, 1960 to N. P. Harshberger. A composition for forming low-density, high-strength containers, pipes, refractories, and the like comprises about 5-30% amosite or Canadian 7D chrysotile asbestos fibre, 5-25% expanded perlite, 55-85% alumina cement or portland cement, and the balance water.

High Strength Specialty Papers and Process for Producing The Same, No. 2,962,414-5. Granted on November 29, 1960, to H. F. Arledter (assigned to Hurlbut Paper Company, a corporation of Ohio). Specialty papers having high tear, impact, and tensile strengths consist of an interfelted fibrous web and a resin powder. The web is preferably made of a mixture of fibers, including asbestos fibre, glass fiber, and cellulose fiber.

Process For The Preparation of Refractory Insulating Blocks, No. 2,965,504. Granted on December 20, 1960, to C. J. Gogek (assigned to Corn Products Corporation, a corporation of Delaware). In the manufacture of insulating refractories, a major proportion of mineral wool is mixed with lesser proportions of asbestos fibre, bentonite, iron oxide, and a sugar compound, such as dextrose hydrate or molasses, mixed with ammonium sulfate to serve as the binder.

Apparatus For The Manufacture of Multi-Layer Tubular Bodies, No. 2,966,715. Granted on January 3, 1961, to L. Vianini. Design for an improved apparatus for use in the manufacture of pipes from a slurry of asbestos fibre and portland cement, which pipes have a reinforcement consisting of uniformly distributed thin and closely adjacent metallic elements. Each layer of the concrete-fibre mixture is reinforced individually.

Material Collector, No. 2,968,400. Granted on January 17, 1961 to F. H. Clute (assigned to The Clute Corporation, Rocky Ford, Colorado). Apparatus for separating materials of differing specific gravities and physical characteristics, e.g. asbestos fibre

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from comminuted asbestos ore, wherein the material moves along a predetermined path of travel and progressively lighter fractions are discharged from the airborne stream.

Apparatus for Forming Tubular Conduits From Fibrous Material, No. 2,969,836. Granted on January 31, 1961 to E. Ceriat (assigned to American Vitrified Products Company, Cleveland, Ohio). Design for an apparatus for the continuous manufacture of pipe from a slurry of asbestos fibre and portland cement in such a manner that the finished pipe is of uniform quality, both as to density and contour, and the pipe is produced more rapidly and at lower cost than when made by prior machines and processes.

BOOK LIST

The Asbestos Factbook, 16 pages: Information in comment form on origin, facts, locations, uses of analyses, qualities, 25c per copy.

Asbestos Mining Methods. By C. V. Smith. (Reprint) 16 pages 25c per copy.

Milling Asbestos. By J. C. Kelleher. (Reprint) 16 pages. Companion article to Asbestos Mining Methods. Both should be in every Asbestos Library, 25c per copy.

Recovery of Raw Asbestos. By Roland Starkey. (Reprint) 6 pages. Supplement to Milling Asbestos. 25c per copy.

Canadian Chrysotile Asbestos Classification. Including latest Quebec Testing Method. January 9, 1961 Edition. 4 pages 35c per copy.

Processing Asbestos Fibres. 8 pages. (Reprint). 25c per copy

Tests for Cotton Content. 4 pages (Reprint). Describing several methods of testing asbestos textile for cotton content. 10c per copy.

Chart—Dollars Cost of Uninsulated Pipe. (Reprint), 20c each

Brake Linings of Various Types. By R. T. Halstead, (Reprint) (12 pages) from August, September and October 1949 "ASBESTOS". Price 25c per copy.

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